

# Carrying Out Error Analysis.

look at dev set to evaluate ideas:

Example: After evaluating dev set errors, you realize that your cat classifier mislabeled some dog images as cats.

Error Analysis:

- Get 100 mislabeled dev set examples
- Count up how many are dogs.

Scenario 1:  $\frac{5\%}{5/100}$  of 100 mislabeled dev set examples

10% error rate  $\xrightarrow{\text{fixing dog problem}}$  9.5%

In this case, it might not be a good idea to optimize dog errors,  
Since it only contribute to a trivial portion of error.

Scenario 2:  $\frac{50\%}{50/100}$

In this case, it's worth to tackle the dog mismatch problem.

10% error rate  $\xrightarrow{\quad \quad \quad}$  5%

Evaluate multiple ideas in parallel:

Example: ideas for cat detection:

- dogs being recognized as cats
- great cats (lions, panthers, etc) being misrecognized.
- Improve performance on blurry image.

Error Analysis is a powerful tool for us to determine the path we should take which can most effectively improve our model.

## cleaning Up Incorrectly Labeled Data

Deep Learning algorithms are quite robust to random errors in the training set, but not systmetic errors

## Error Analysis:

overall dev set error	<u>10%</u>	2%
Error due incorrect labels	<u>0.6%</u> Not very significant.	<u>0.6%</u> might need to be fixed
Error due to other causes	9.4%	1.4%

Goal of dev set is to help you select between two classifiers A and B.

## Correcting incorrect dev / test set examples :

- Apply same process to dev and test set to make sure they continue to come from same distribution.
  - Examine correct predictions as well.

\* Normal practice: Build your system quickly, then iterate through error analysis.